CHICAGO

NWS Forecast Office Chicago

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40 Years Ago – Back to Back Big Spring Snows

By Jim Allsopp, Warning Coordination Meteorologist

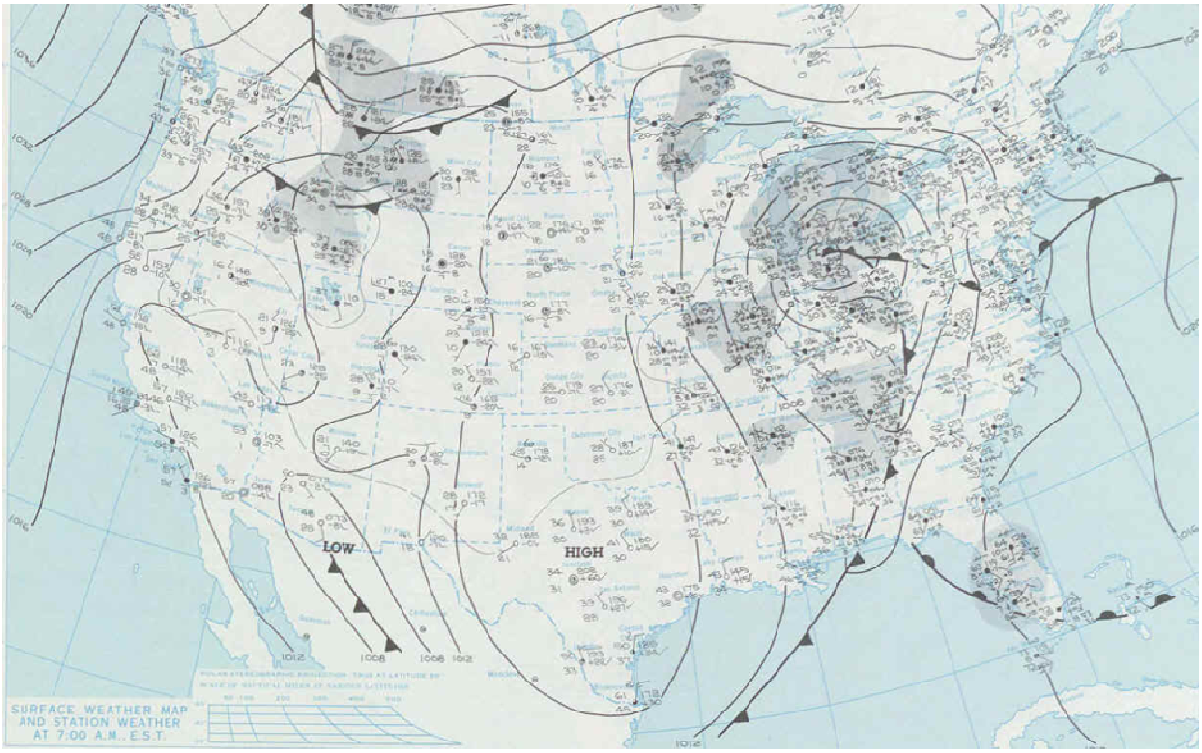
Forty years ago Simon and Garfunkel's Bridge Over Troubled Water was at the top of the Billboard Top 40 and the Chevy Impala was the top selling car in the country. And on March 25 and 26, 1970, Chicago was buried by one of the heaviest spring snow storms on record.

The totals were 14.3 inches at Midway Airport and 10.6 inches at O'Hare. A week later, on April 1 and 2, another 10.7 inches fell at Midway, with 7.2 inches at O'Hare. Both snows were heavy and wet. The snow to water ratio was 7.9 to 1 for the late March storm and 8.5 to 1 for the April storm. Both snow storms were accompanied by thunder and lightning and strong gusty winds.

There was a period of mild weather leading up to the first snow storm. Temperatures were in the upper 40s to upper 50s from March 21 to March 24. On March 25, the temperature climbed to the mid 40s by late morning. But as low pressure over the southern Plains moved northeast and intensified, colder air was pulled into the Chicago area, and temperatures fell into the mid 30s. Snow began during the afternoon, and fell heavily from the evening of March 25 through the early morning of March 26. By the morning of March 26 the low had deepened to about 29.20 inches of mercury and moved to near Fort Wayne, Indiana. This intense low produced strong gusty winds. A peak wind gust to 44 mph from the northeast was measured at Midway.

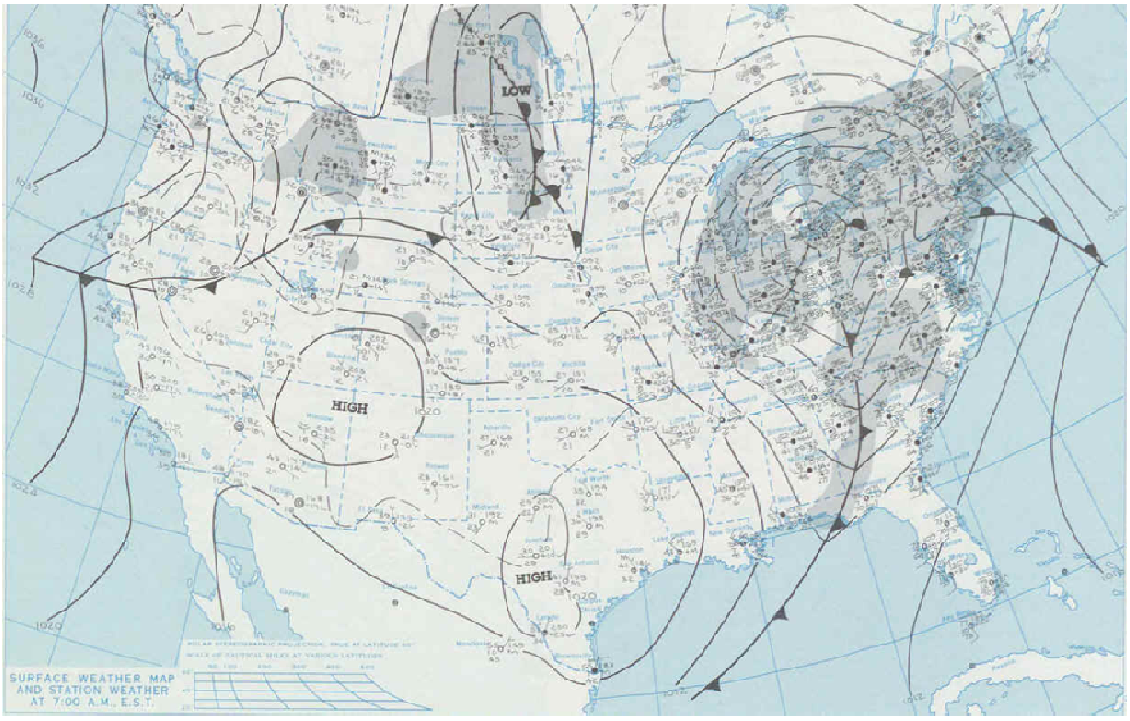
Website:
weather.gov/Chicago

815-834-1435



Weather map
March 26, 1970
600 a.m. CST

The snowstorm was followed by several days of unseasonably cool weather during the last week of March, including one night where temperatures fell into the mid teens, on March 28. Despite the cool weather, the deep snow gradually melted away by the first of April. Then the second snowstorm hit Chicago with more heavy, wet snow, strong winds, and lightning and thunder. Again low pressure developed over the southern Plains, then moved northeast. The second storm was even stronger, intensifying to 28.94 inches of mercury by the time it reached Toledo, Ohio on the morning of April 2. The heaviest snow fell from mid afternoon into early evening of April 1 before tapering off in the morning of April 2. In the wake of this powerful storm the wind peaked at 52 mph at Midway.



Weather map
April 2, 1970
600 a.m. CST

How Bad Is Chicago Weather, Really?

By Rosanne Sengenberger, Student Volunteer

The city of Chicago, or at least its residents, like to boast about the climate in Chicago, how extreme it can be, how much it varies, and generally, how difficult it is. But really, how bad do we have it? Is our weather as extreme as we think it is, or are we more in the middle of the pack, in terms of climate difficulties? Maybe, even, do we have it easy?

Having just broken into meteorological spring (March, April, May), a comparison between Chicago's spring weather and the spring weather of other cities can give us some insight into where we sit, climatologically. We will compare eleven cities in the United States, as well as six international cities, all in the Northern Hemisphere. The cities chosen for comparison were not chosen for specific climate detail, but rather for general familiarity of name and relative spread of geographic location. American locations examined are;

- Chicago, IL
- Seattle, WA
- Phoenix, AZ
- San Antonio, TX
- Miami, FL
- New York, NY
- Caribou, ME
- Grand Forks, ND
- North Platte, NE
- Morristown, TN
- Norman, OK
- Fairbanks, AK

International locations are

- Alert, Nunavut Providence of Canada
- Cartwright, Newfoundland Providence of Canada
- London, England
- Baghdad, Iraq
- Moscow, Russia
- Beijing, China
- Cairo, Egypt

March - For the month of March, Chicago's average high temperature is 46.3˚F. Amongst the cities surveyed in the US, Fairbanks has the lowest average high temperature at 25.0˚F, and Miami has the highest average high at 79.7˚F. Chicago's average low temperature is at 29.1˚F. Fairbanks and Miami also have the lowest and highest average lows, at -0.9˚F and 64.7˚F, respectively. For precipitation, Chicago has an average of 2.75 inches for March. New York has the highest average, with 4.15 inches. Fairbanks takes the lower bound, at 0.28 inches.

Internationally, Baghdad, Iraq has the warmest average high temperature in March, at 73˚F, and Alert, Nunavut, Canada has the lowest high at -19.7˚F. Baghdad and Alert have the highest and lowest average low temperatures, also at 50˚F and -33.0˚F, respectively. Alert also has the lowest precipitation totals for March at 0.2 inches. Cartwright has the highest average precipitation at 3.81 inches.

April - During the month of April, Chicago warms up a little with an average high of 58.1˚F, an average low of 38.5˚F, with 3.74 inches of precipitation. For the national survey, Phoenix comes in over Miami with the highest average high at 85˚F, and no stranger to the competition is Fairbanks, with the lowest high at 43.6˚F. Miami takes back its position with the highest average low at 68.2˚F, and Fairbanks maintains its position with lowest average low at 21.5˚F. New York still maintains the highest precipitation at 3.99 inches, as well as Fairbanks maintaining lowest precipitation at 0.21 inches.

Internationally in April, Baghdad just barely holds onto highest average high at 84˚F over Cairo, Egypt at 82.4˚F. Alert easily maintains lowest high average at -4.9˚F. Baghdad and Cairo actually tie for highest average low at 59˚F. There is just no competition for Alert with the lowest average low at -18.8˚F. Cairo takes over lowest precipitation with only 0.1 inches of precipitation for the month of April. Cartwright, however, has the highest precipitation with 3.35 inches.

May - The month of May sees Chicago with an average high of 70.2˚F, an average low of 48.5˚F, and an average precipitation amount of 3.47 inches. Phoenix controls its grasp on highest average high at 93.8˚F. Fairbanks this time, loses out to Caribou, Maine for lowest average high, with Caribou averaging at 60.7˚F, and Fairbanks at 62.6˚F. Miami takes back the highest average low, however, with 72.5˚F, and Fairbanks wins back the lowest average low with 38.3˚F. Both Fairbanks and New York lose their precipitation holds, with Miami coming in at 5.52 inches for highest average, and Phoenix at 0.16 in for lowest average.

On the international level, Baghdad still maintains highest average high with an average high of 96˚F. Still sitting below freezing, Alert is once again the lowest average high with 16.3˚F. Highest average low is Baghdad's by only a couple of degrees, Baghdad being 68˚F, and Cairo being 64.4˚F. Sitting well below freezing still at 5.2˚F, the lowest average low is still Alert's. Cairo maintains a firm hold on lowest precipitation by averaging none at all. Cartwright is still the wettest, with 2.68 inches, although fairly closely followed by Moscow, Russia with 2.16 inches.

All-time Extremes - In terms of all-time extreme temperatures, Chicago's record high sits at 105˚F, set on July 24th, 1934, and the record low is -27˚F set on January 20th, 1985. Of the cities surveyed, Phoenix Arizona easily takes first place for highest record high, at 122˚F. The next highest is Norman, Oklahoma at 116˚. Fairbanks has the coldest record low, -58˚F. Internationally, Baghdad has the highest, with a record high of 122˚F. Alert has the coldest record low, a frigid -58˚F.

Summary - Nationally, in terms of temperatures, we run close to Seattle, Washington, North Platte, Nebraska, and Grand Forks, North Dakota (in April and May). At the beginning of spring, Chicago's precipitation is fairly close to Miami and Caribou. Towards the end of spring, it's still similar to Miami, but similar to New York as well. Internationally, in terms of temperatures, we're close to Beijing, China, but the separation starts to increase towards the end of spring with Beijing heating faster than Chicago. During the middle and towards the end of spring, Chicago is not much warmer than Moscow, Russia. For precipitation, except for the month of March, Chicago is actually wetter than all of the international cities surveyed. So where do we fit? Well, from the cities surveyed, Chicago is pretty much at the middle of the pack. We're not the hottest, we're not the coldest, and we're not the wettest or driest.

So You Want to Be a Meteorologist?

By Jim Allsopp, Warning Coordination Meteorologist

National Weather Service personnel are often contacted by students, or parents of students, who are interested in weather. Some of the commonly asked questions are;

What classes should I take in high school?

What college/university should I attend?

Will there be job opportunities in meteorology?

How can I become a storm chaser?

Education: To become an operational meteorologist, students must earn at least a bachelor's degree in meteorology or atmospheric sciences. This degree requires a strong math and physical science background including;

- At least 24 semester hours in meteorology/atmospheric science including a minimum of:
  - 6 hours of atmospheric dynamics and thermodynamics.*
  - 6 hours of analysis and prediction of weather systems.
  - 3 hours of physical meteorology.
  - 2 hours of remote sensing of the atmosphere and/or instrumentation.
- 6 hours of physics.*
- 3 hours of ordinary differential equations.*
- At least 9 hours of course work appropriate for a physical science major in any combination of three or more of the following: physical hydrology, statistics, chemistry, physical oceanography, physical climatology, radiative transfer, aeronomy, advanced thermodynamics, advanced electricity and magnetism, light and optics, computer science, GIS.

* There is a prerequisite or co-requisite of calculus for course work in atmospheric dynamics and thermodynamics, physics, and differential equations.

Students who plan to go into research or teaching should work toward a Master's degree or PhD.

To prepare for college, high school students should excel in math and physical sciences such as physics, chemistry, and earth science. A strong computer background would also be helpful.

There are many colleges and universities that offer a degree in meteorology or atmospheric science. At some schools the meteorology program may be part of the geography department. In the local area, Northern Illinois University at DeKalb and Valparaiso University in northwest Indiana offer undergraduate degrees in meteorology. An internet search will turn up many other schools across the country with strong meteorology programs.

American Meteorological Society – list of colleges/universities with degree programs in meteorology/ atmospheric sciences

http://www.ametsoc.org/amsucar_curricula/curriculaDegree.cfm

National Weather Association – list of colleges/universities with degree programs in meteorology/atmospheric sciences

www.nwas.org/links/universities.html

Careers: Most National Weather Service meteorologists work out of 122 field offices, which are scattered across the country, as well as in Guam and Puerto Rico. The NWS also has several national centers, such as the Storm Prediction Center in Norman, OK, and the Tropical Prediction Center (National Hurricane Center) in Miami, FL. There are also regional headquarters offices, which support the field offices.

College graduates starting in the NWS are usually hired as Meteorologist Interns. All hiring is done through Office of Personnel Management. The web page is www.usajobs.gov. After a one to three year training period, the intern would be eligible to apply for a forecaster position anywhere in the NWS where there is a vacancy. The next step up would be the Lead Forecaster position. Administrative positions include the Warning Coordination Meteorologist, who is the liaison between the NWS and its partners in emergency management and the media, as well as overseeing the public outreach and hazardous weather preparedness efforts. Another position is the Science and Operations Officer who oversee the internal training and operations at the office. The top spot at an NWS office is the Meteorologist in Charge.

Life in the NWS generally includes working rotating shifts and occasional overtime for hazardous weather or to fill staffing shortages.

Other career paths in meteorology include broadcast meteorology (television/radio), private meteorological consulting firms, teaching, and research. Some utilities, airlines, and other industries may also have their own staffs of meteorologists. The U.S. Air Force and Navy have their own meteorology departments.

Storm Chasing: The NWS is not directly involved in storm chasing. In fact, there are very few people that chase storms for a living. The exceptions would be people participating in a research project conducted by NOAA's National Severe Storms Laboratory, or as part of university research project. There are a few outfitters that lead storm chases trips and also a few storm chasers who make some income by selling books, and videos. But by and large, storm chasers watch storms as a hobby on their own time and on their own dime.

Other Links: Here are some links to meteorology career information;

American Meteorological Society – careers in meteorology

www.ametsoc.org/AMS/pubs/careers.html

NOAA National Severe Storms Laboratory – careers in meteorology http://www.nssl.noaa.gov/faq/ faq_careers.php

Careers in Atmospheric Sciences from the Occupational Outlook Handbook published by the US Department of Labor, Bureau of Labor Statistics http://stats.bls.gov/oco/ocos051.htm.

Summer Outlook 2010

By Amy Seeley, Hydro Meteorological Technician and Climate Co-Focal Point

A lot of people were asking what happened to summer last year. Looking back at the numbers (listed below), Summer 2009 was certainly colder and wetter than normal across northern Illinois and northwest Indiana.

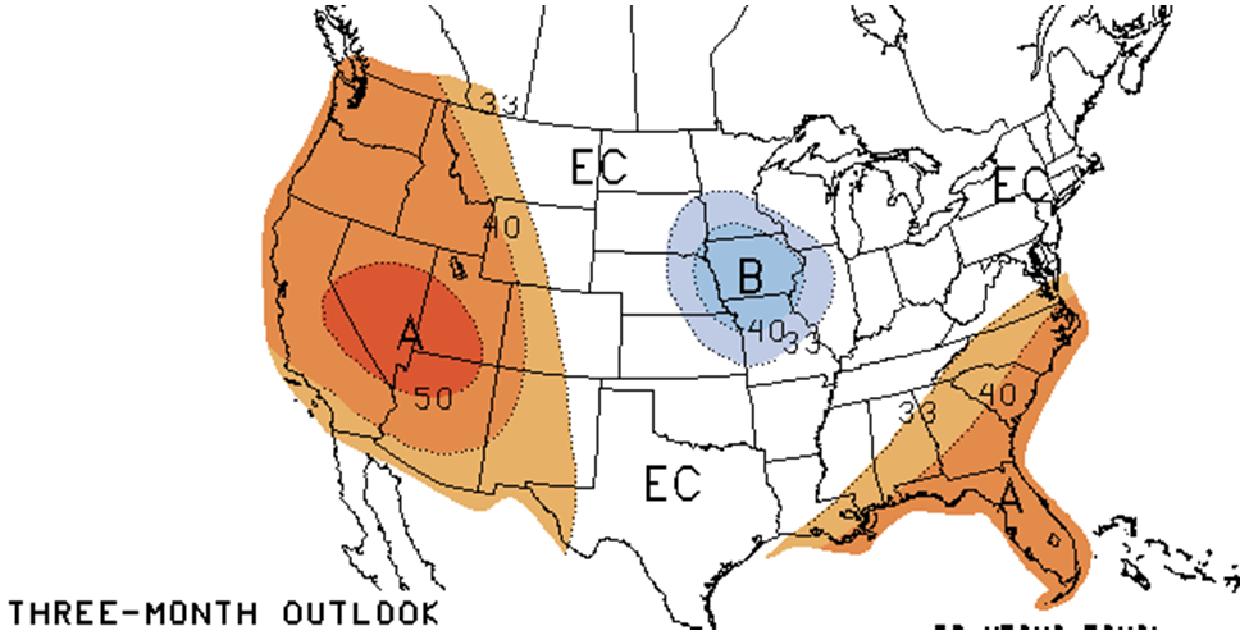
Here is a review of summer of 2009 for Chicago O'Hare and Rockford.

Meteorological Summer is defined as the months June-August.

Chicago	2009	Normal
Precipitation (in Inches)	12.97	11.76
Temperature (in degrees F)	69.2	71.1

Rockford	2009	Normal
Precipitation (in Inches)	17.15	13.11
Temperature (in degrees F)	67.8	70.9

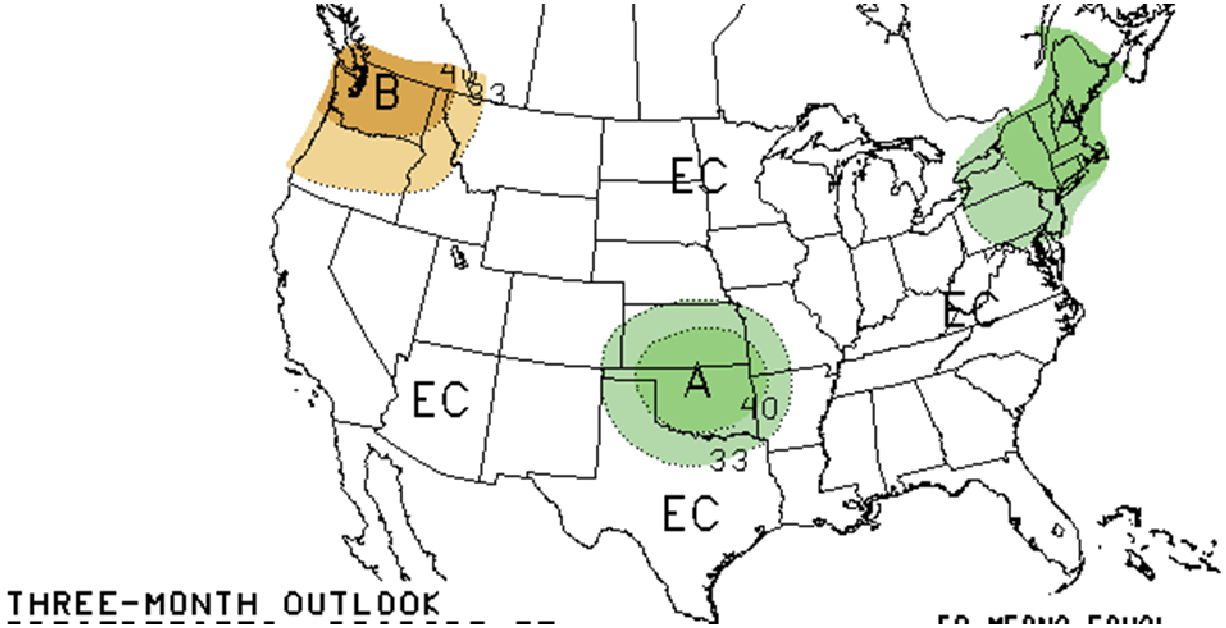
So what does Summer 2010 hold for the area?



Summer temperature outlook for the United States from the Climate Prediction Center.

The Climate Prediction Center (CPC) outlook for the upcoming summer shows that for northwest Indiana and most of northeast Illinois, the forecast is for equal chances for above normal, below normal or normal temperatures. However for north central Illinois, the forecast is for better chances for below normal temperatures for the summer.

Across the rest of the nation, there are better chances for above normal temperatures, especially across the western one-third of the United States and across the Gulf coast, Florida and up into the southeastern states.



Summer precipitation outlook for the United States from the Climate Prediction Center.

As for precipitation, most of the nation has equal chances for above normal, below normal or normal precipitation for the summer months. Meanwhile better chances for above normal precipitation are forecast across the southern Plains as well as the northeast U.S. Better chances for below normal precipitation is forecast for areas of the Pacific Northwest.

Valparaiso StormReady!

By Jim Allsopp, Warning Coordination Meteorologist

Valparaiso University was recognized as the first StormReady university in Indiana, and only the 51st in the nation, at a ceremony on March 17. The StormReady program recognizes counties, communities, universities and other institutions that meet certain requirements to become better prepared for hazardous weather. Some of the requirements include;

- having redundant methods of monitoring weather conditions
- having redundant methods of receiving severe weather warnings from the NWS
- having redundant methods of disseminating warnings to the community, including tone alert NOAA weather radios in all public buildings
- having trained storm spotters and communications with the NWS
- hazardous weather education programs for the community
- conducting hazardous weather drills

The NWS, in cooperation with Indiana Department of Homeland Security and Emergency Management Alliance of Indiana, found that the university met or exceeded all the requirements thanks to efforts by Safety Manager Don Wilson, Assistant Police Chief Charles Garber Jr., and the Valparaiso University meteorology Department.

Pictured left to right; Valparaiso University Safety Manager Don Wilson, members of the Executive Board of the Valparaiso Storm Intercept Team, NWS Chicago Warning Coordination Meteorologist Jim Allsopp (holding sign), Valparaiso University President Mark Heckler (holding sign), Meteorology Department Chair Dr. Bart Wolf, NWS Chicago Meteorologist Intern (and Valparaiso Alum) Andy Boxell, NWS Chicago Meteorologist in Charge Ed Fenelon, Porter County Emergency Management Coordinator Phil Griffith (representing Emergency Management Alliance of Indiana), and Jennifer Payne of Indiana Department of Homeland Security.